

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference TSL01842PCT	<b>FOR FURTHER ACTION</b>	See item 4 below
International application No. PCT/JP2004/018531	International filing date ( <i>day/month/year</i> ) 07 December 2004 (07.12.2004)	Priority date ( <i>day/month/year</i> ) 24 December 2003 (24.12.2003)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant DOW CORNING TORAY CO., LTD.		

1.	This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).																								
2.	<p>This REPORT consists of a total of 9 sheets, including this cover sheet.</p> <p>In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p>																								
3.	<p>This report contains indications relating to the following items:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 30%;">Box No. I</td> <td style="width: 60%;">Basis of the report</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input checked="" type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input checked="" type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input checked="" type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application
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4.	The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).																								

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No. +41 22 338 82 70	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">Date of issuance of this report 26 June 2006 (26.06.2006)</td> </tr> <tr> <td style="padding: 5px;">                     Authorized officer   <div style="text-align: center; font-weight: bold; font-size: 1.2em;">Yoshiko Kuwahara</div> </td> </tr> <tr> <td style="padding: 5px;">e-mail: pt07@wipo.int</td> </tr> </table>	Date of issuance of this report 26 June 2006 (26.06.2006)	Authorized officer  <div style="text-align: center; font-weight: bold; font-size: 1.2em;">Yoshiko Kuwahara</div>	e-mail: pt07@wipo.int
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e-mail: pt07@wipo.int				

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

REC'D 24 MAY 2005

PCT  
WIPO

PCT

To:

see form PCT/ISA/220

## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/JP2004/018531

International filing date (day/month/year)  
07.12.2004

Priority date (day/month/year)  
24.12.2003

International Patent Classification (IPC) or both national classification and IPC  
H01L21/68, H01L21/58

Applicant  
DOW CORNING TORAY SILICONE CO., LTD.

### 1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☒ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

### 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1b/s(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

### 3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office  
D-80298 Munich  
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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/JP2004/018531

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**Box No. I Basis of the opinion**

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1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:  
☐ a sequence listing  
☐ table(s) related to the sequence listing
  - b. format of material:  
☐ in written format  
☐ in computer readable form
  - c. time of filing/furnishing:  
☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/JP2004/018531

**Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application,
- ☒ claims Nos. 7-9

because:

- ☐ the said international application, or the said claims Nos.      relate to the following subject matter which does not require an international preliminary examination (*specify*):
- ☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos.      are so unclear that no meaningful opinion could be formed (*specify*):
- ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
- ☒ no international search report has been established for the whole application or for said claims Nos. 7-9
- ☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:
  - the written form                      ☐ has not been furnished
  - ☐ does not comply with the standard
  - the computer readable form      ☐ has not been furnished
  - ☐ does not comply with the standard
- ☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-bis of the Administrative Instructions.
- ☐ See separate sheet for further details

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/JP2004/018531

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**Box No. IV Lack of unity of invention**

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1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees, the applicant has:
- ☐ paid additional fees.
  - ☐ paid additional fees under protest.
  - ☒ not paid additional fees.
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- ☐ complied with
  - ☒ not complied with for the following reasons:  
**see separate sheet**
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☐ all parts.
  - ☒ the parts relating to claims Nos. 1-6

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**Box No. V Reasoned statement under Rule 43b/s.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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**1. Statement**

Novelty (N)	Yes: Claims	3
	No: Claims	1-2,4-6
Inventive step (IS)	Yes: Claims	
	No: Claims	1-6
Industrial applicability (IA)	Yes: Claims	1-6
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/JP2004/018531

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**Box No. VI Certain documents cited**

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1. Certain published documents (Rules 43*bis*.1 and 70.10)  
and / or
2. Non-written disclosures (Rules 43*bis*.1 and 70.9)  
**see form 210**

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**Box No. VIII Certain observations on the international application**

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The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

Concerning V

V.1 Reference is made to the following documents:

D1:JP2002226796

D2: US6319754

V.1.1 The computer generated translation of the Japanese publication D1 is annexed to this communication. The translation is also available on-line on the following Internet site [www.ipdl.ncipi.go.jp/homepg\\_e.ipdl](http://www.ipdl.ncipi.go.jp/homepg_e.ipdl).

V.2 Novelty claims 1 and 6

V.2.1 D1( paragraphs 31,33,38,65,76,78,109 figures 2 and 3) and its computer generated translation discloses a dicing/die bonding sheet adhesively bonded to a semiconductor wafer prior to the dicing of said semiconductor wafer (A), wherein said dicing/die bonding sheet is provided with a base film (2), an undercoat layer (3) formed on the above mentioned base film, and a silicone (4) based adhesive agent layer formed on the above mentioned undercoat layer (3) and having an adhesive surface adhesively bonded to the above-mentioned semiconductor wafer. Therefore claim 1 is not considered to meet the requirements of article 33(2) PCT. D1 implicitly discloses a method of manufacturing the dicing/die bonding film by forming the undercoat (3) and silicone based adhesive (4) on the base layer (2). Therefore claim 6 is not considered to meet the requirements of article 33(2) PCT.

V.3 Dependent claims 2-5 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step, the reasons being as follow.

V.3.1 D1(figures 6-9) discloses that the dicing/die bonding sheet wherein silicone based adhesive agent layer can be stripped from the undercoat layer after bonding to the above mentioned semiconductor wafer. Therefore claim 2 is not considered to meet the requirements of article 33(2) PCT.

- V.3.2 D2 (Fig. 4) discloses that the dicing/die bonding sheet wherein undercoat layer is a laminate made up of at least two layers (204,205). The person skilled in the art would readily use this type of undercoat to tailor the adhesion strength between the die bonding adhesive and the wafer respective die bonding adhesive and the base layer(211) (see D2 column 2: line 53- column 3: line 11). He would readily use this type of structure for any dicing/die bonding sheet. Therefore claim 3 is not considered to meet the requirements of article 33(3) PCT.
- V.3.3 D1 (figure 3) discloses that the dicing/die bonding sheet (2,3,4) wherein the above mentioned base film (2) has a surface area that is not less than the above mentioned semiconductor wafer (A). Therefore claim 4 is not considered to meet the requirements of article 33(2) PCT.
- V.3.4 D1 (paragraph 109, fig 2) discloses that the intermediate product (i.e dicing sheet without wafer) is coated with a strippable protective layer (5) (see objections und VIII.1). Therefore claim 5 is not considered to meet the requirements of article 33(2) PCT.

Concerning VI

- VI.1 Attention is drawn to WO200407628 (paragraphs 34, 42-44, figure 2 and 3) under Rule 70.10.

Concerning VIII

- VIII.1 Clarity claims 1 and 5

The scope of claim 1 is unclear for the following reason. Claim 1 has been drafted as being a combination of a the dicing/die bonding sheet and a semiconductor wafer and not as: A dicing/die bonding sheet (suitable) for adhesively bonding a semiconductor wafer. Furthermore claim 5 implicitly excludes the possibility of a wafer being directly connected to the silicone adhesive layer of the bonding sheet, since the strippable protective layer is,



according to the description laminated on the silicone adhesive layer. It is thus a part of the intermediate product that has to be removed prior to lamination with the semiconductor wafer. It cannot be a part of the dicing tape / wafer assembly.

**VIII.2**     Insufficient disclosure

The application documents do not provide any concrete example of a silicone adhesive/undercoat/base film stack. Both the examples and the comparative examples disclose merely the use of film A and film B respectively. However no clue is given as to the nature of these films. It is therefore doubted that sufficient information is given for the invention to be carried out by a person skilled in the art contrary to PCT Guidelines PCT/GL/ISPE/ 5.45.